# NETL
# Vacancy Announcement

**U.S. DEPARTMENT OF ENERGY - NATIONAL ENERGY TECHNOLOGY LABORATORY (NETL)**

**ANNOUNCEMENT NO.:** NETL-09-150C

**OPENING DATE:** 3/17/2009

**CLOSING DATE:** 3/23/2010

**POSITION:** Interdisciplinary: General Engineer/Physical Scientist, GS-801/1301-13/14

**LOCATION:** Office of Research & Development
Computational Science Division
Morgantown, WV

**SUBJECT TO:**
Agreement Covering Discoveries, Inventions and Improvements

**PROMOTION POTENTIAL:** GS-14

**SALARY RANGE:** (Includes locality pay)

GS-13: $80,402 - $104,525 per annum
GS-14: $95,010 - $123,519 per annum

**AREA OF CONSIDERATION:** All eligible Office of Civilian Radioactive Waste Management (RW) employees.*

*RW employees will receive priority placement consideration for any vacancy within DOE under the DOE Internal Transition Assistance Plan (ITAP). RW employees will be considered and selected before any other candidate as long as the employee meets the qualification requirements for the position. This is being re-announced for the purpose of clearing the Career Transition Assistance Program (CTAP).

**DUTIES AND RESPONSIBILITIES:** This position is located in the Computational Science Division, Office of Research and Development. The function of this Division is to (1) conceive, plan, direct, and conduct exploratory and applied research in the areas of computer simulation and modeling, scientific computing, and the science of flowing materials, including multi-phase and chemically reactive flows, (2) investigate theoretical and fundamental phenomena as necessary to support program needs and develop new concepts, (3) develop and maintain human core competencies, and key facilities and equipment, (4) provide technical expertise to matrix teams in the areas of virtual demonstration, process simulation, computing and fluid flow experimentation, and (5) provide coordination and leadership between NETL's Business Areas

and the Division's focus areas of research.

This position is for a senior research scientist or engineer to conduct simulation science research in the area of model development and application for advanced high efficiency, fossil energy-based processes, and provide research leadership to a group of scientists and engineers involved in multiphase model development and applications. The ideal candidate for this position would be someone who has highly developed skills in multiphase flow simulations and model development for fossil energy technologies as well as in-depth experience and knowledge of computational science research in the national research community.

The incumbent will conduct simulation science research and application in the area of chemically reacting, dense and dilute multiphase flows. The incumbent will perform simulations of advanced power plant processes using the MFIX code as well as commercial computational fluid dynamics (CFD) software packages such as FLUENT. The incumbent will be familiar with the strengths and weaknesses of Eulerian-Eulerian and Eulerian-Lagrangian based models, range of applicability, and a basic understanding of the numerical techniques used in these models. Based on this understanding the incumbent should be able to formulate comprehensive research and development plans consistent with activities within the Computational Science Division's Multiphase Flow Research Group.

**QUALIFICATION REQUIREMENTS:** Applicants must have general and/or specialized experience and any selective placement factors as described below. This requirement is in accordance with the OPM Qualifications Standards Operating Manual, available in any Government Personnel Office, which specifies when and how education may be substituted for the experience.

**BASIC REQUIREMENTS FOR ENGINEER:**

A. Degree: Professional engineering. To be acceptable, the curriculum must (1) be in a school of engineering with at least one curriculum accredited by the Accreditation Board of Engineering and Technology (ABET) as a professional engineering curriculum; or (2) include differential and integral calculus and courses (more advanced than first-year physics and chemistry) in five of the following seven areas of engineering science or physics: (a) statics, dynamics; (b) strength of materials (stress-strain relationships); (c) fluid mechanics, hydraulics; (d) thermodynamics; (e) electrical fields and circuits; (f) nature and properties of materials (relating particle and aggregate structure to properties); and (g) any other comparable area of fundamental engineering science or physics, such as optics, heat transfer, soil mechanics, or electronics; **OR**

B. If you do not meet the basic engineering requirement above, you may qualify with a combination of education and experience -- college level education, training, and/or technical experience that furnished (1) a thorough knowledge of the physical and mathematical sciences underlying professional engineering and (2) a good understanding, both theoretical and practical, of the engineering sciences and techniques and their applications to one of the branches of engineering. The adequacy of such background must be demonstrated by one of the following:

(1) Professional Registration -- Current registration as a professional engineer by any State, the District of Columbia, Guam, or Puerto Rico. Generally, such registration must require a written test. If you qualify for registration by means other than a written test (such as State grandfather or eminence provision), you are eligible only for the specialty field of your registration.

(2) Written Test -- Evidence of having successfully passed the Engineer-in-Training (EIT) examination and have completed all the requirements for either (a) a bachelor's degree in engineering technology (BET) from an accredited college or university which included 60 semester (90 quarter) hours of courses in the physical, mathematical, and engineering sciences, or (b) a BET from a program accredited by the Accreditation Board for Engineering and Technology (ABET). Eligibility is limited to positions that are within or closely related to the specialty field of the engineering technology program.

(3) Specific Academic Courses -- Successful completion of at least 60 semester hours of courses in the physical, mathematical, and engineering sciences and engineering, which included the courses specified in Paragraph A. The courses must be fully acceptable toward meeting the requirements of a professional engineering curriculum as described in Paragraph A.

(4) Related Curriculum -- Successful completion of a curriculum leading to a bachelor's degree in engineering technology or in an appropriate professional field, e.g., physics, chemistry, architecture, computer science, mathematics, hydrology, or geology, may be accepted in lieu of a degree in engineering, provided the applicant has had at least 1 year of professional engineering experience acquired under professional engineering supervision and guidance. **AND**

**ADDITIONAL EXPERIENCE FOR THE GS-13:** In addition to meeting basic qualification requirements, candidates must possess at least one year of professional experience in a field appropriate to the specialization for which applying, that was comparable in level of responsibility and difficulty to that of the GS-12 level in the Federal service. The ideal candidate for this position would have a Ph.D. degree in a related area with the necessary specialized experience as defined below.

**ADDITIONAL EXPERIENCE FOR THE GS-14:** In addition to meeting basic qualification requirements, candidates must possess at least one year of professional experience in a field appropriate to the specialization for which applying, that was comparable in level of responsibility and difficulty to that of the GS-13 level in the Federal service. The ideal candidate for this position would have a Ph.D. degree in a related area with the necessary specialized experience as defined below.

**Specialized experience** typically involves research experience in mathematical modeling, computer simulation, and multiphase-reacting computational fluid dynamic models including Eulerian and/or Lagrangian approaches for fossil energy systems.

**BASIC REQUIREMENTS FOR PHYSICAL SCIENTIST:**

A. Degree: Physical science, engineering, or mathematics that included 24 semester hours in physical science and/or related engineering science such as mechanics, dynamics, properties of materials, and electronics. **OR**

B. Combination of education and experience—education equivalent to one of the majors shown in A above that included at least 24 semester hours in physical science and/or related engineering science, plus appropriate experience or additional education. **AND**

**ADDITIONAL EXPERIENCE FOR THE GS-13:** In addition to meeting basic qualification requirements, candidates must possess at least one year of professional experience in a field appropriate to the specialization for which applying, that was comparable in level of responsibility and difficulty to that of the GS-12 level in the Federal service. The ideal candidate for this

position would have a Ph.D. degree in a related area with the necessary specialized experience as defined below.

**ADDITIONAL EXPERIENCE FOR THE GS-14:** In addition to meeting basic qualification requirements, candidates must possess at least one year of professional experience in a field appropriate to the specialization for which applying, that was comparable in level of responsibility and difficulty to that of the GS-13 level in the Federal service. The ideal candidate for this position would have a Ph.D. degree in a related area with the necessary specialized experience as defined below.

**Specialized experience** typically involves research experience in mathematical modeling, computer simulation, and multiphase-reacting computational fluid dynamic models including Eulerian and/or Lagrangian approaches for fossil energy systems.

**FOREIGN EDUCATION**

Applicants who have completed part or all of their education outside of the U.S. must have their foreign education evaluated by an accredited organization to ensure that the foreign education is comparable to education received in accredited educational institutions in the U.S. A written evaluation of any foreign education must be provided with your application in response to this vacancy announcement or be received by the closing date of this announcement. For a listing of services that can perform this evaluation, see the National Association of Credential Evaluation Services (NACES) website at http://www.naces.org/members.htm. Failure to provide this evaluation will result in you being found unqualified for the position.

PLEASE NOTE: If your foreign education has already been accepted by an accredited U.S. educational institution as part of a degree program with that institution, you do not need to provide an evaluation of foreign education but must submit a copy of the transcripts listing the degree from the U.S. accredited institution that accepted your foreign education.

**BASIS OF EVALUATION:** Qualified applicants will be rated against the established quality ranking factors (QRF). The extent to which a candidate possesses each knowledge, skill, and/or ability will be determined by measuring the level of experience, education, and training as they relate to each quality ranking factor. The quality ranking factors listed below have been weighted by the Selecting Official based on their relative importance to the position being filled. **RATING/RANKING OF APPLICANTS WILL BE BASED SOLELY ON INFORMATION CONTAINED IN THE CANDIDATE'S APPLICATION PACKAGE; THEREFORE, CANDIDATES ARE REQUESTED TO SPECIFICALLY ADDRESS EACH QUALITY RANKING FACTOR AND HIGHLIGHT THE SIGNIFICANCE OF THEIR SPECIFIC EXPERIENCE. FAILURE TO ADDRESS THE QUALITY RANKING FACTORS MAY RESULT IN A LOWER RATING.**

1. Knowledge of mathematical modeling, computer simulation, and multiphase-reacting computational fluid dynamic models including Eulerian and/or Lagrangian approaches with special emphasis on model development and applications for fossil energy systems. (35%)

2. Knowledge of mathematics, numerical analysis techniques, and model applications specific to the study of dense, reacting, multiphase flows for fossil energy applications, such as fluidized bed and transport gasification system. (25%)

3. Ability to lead a team of diverse researchers, identify research needs, formulate research concepts and projects, indentify research team goals/milestones/deliverables related to the

mathematical model development, simulations of fluid flow and chemical processes with special emphasis on fossil energy systems. (20%)

4. Skill in preparing effective written communications in the form of technical reports and peer-reviewed publications. (10%)

5. Skill in communicating orally with management and peers within the scientific community. (10%)

**NOTES:**

RW will pay relocation expenses if a geographic move is required.

The U.S. Department of Energy is an Equal Opportunity Employer.

NOTICE: Federal law requires all employers to verify the identity and employment eligibility of all persons hired to work in the United States. All applicants are subject to Employment Verification (E-Verify).

On vacancy announcements advertised at more than one grade level, applicants must identify the lowest pay or grade level they will accept; otherwise, the applicant will be rated only for the highest grade level for which they are qualified.

As a condition of employment, new employees are required to arrange for direct deposit of paychecks.

The Government is entitled to ownership of any invention directly related to a Government employee's official duties. In return, when such an invention is patented by the Government and then licensed to a private sector entity, NETL is required by law to share a portion of any royalties or other payments received under the license with the Government employee inventor. An inventor may receive up to $150,000 per year under this provision. The annual limit is cumulative for all inventions rather than per invention.

NETL provides reasonable accommodations to applicants with disabilities. If you need a reasonable accommodation for any part of the application and hiring process, please notify the NETL HR Office. The decision on granting reasonable accommodation will be on a case-by-case basis.

You must include your Social Security number on your application.

This position is included in the bargaining unit.

For more information about the National Energy Technology Laboratory (NETL), please visit our website at www.netl.doe.gov. The status of all NETL vacancy announcements can be found at www.netl.doe.gov under career opportunities.

**TO APPLY:** Please complete the following steps to submit your application online:

1. **Register with USAJOBS, which includes Building a resume**:

Once you have completed the initial registration process with www.usajobs.opm.gov click on the **Resume** link. Next, click on the **Build New Resume** link if you have not created and stored a resume in USAJobs. NETL does not accept resumes from the **Upload New Resume** link.

Prior to applying online for the position, upload the required and recommended documents identified below by clicking on the **Saved Documents** link. To upload a document, click **Browse…** and select a file stored on your computer to include in your portfolio. Click on the **"?"** to the right of **Upload a New Document** for additional information. Once selected and named, click **Upload**. After you have successfully uploaded a document, you can click to View or Delete your document(s) at any time. Be advised that once a document has been uploaded it cannot be edited. If the uploaded file must be changed, then it must be deleted, corrected, and then uploaded again. Also, if you have applied for the vacancy and want to change uploaded information, then you must correct the uploaded documents and reapply for the vacancy.

2. **Select the vacancy announcement to which you wish to apply:**
Locate the vacancy announcement on USAJOBS. Review the announcement thoroughly, including the Who May Apply, Qualifications and Required Documents sections. These sections describe what type of applicant is eligible to apply, what education and experience is required to be qualified for the position and which documents you will need to submit to support your application. Click the **Apply Online** link on the right side of the page and then select one of your stored resumes to submit with your application. Click on **Apply for this position now** to start the submission of your application.

**REQUIRED DOCUMENTS:**
****No attempt will be made to solicit missing materials from applicants who fail to submit them by the closing date. Incomplete applications will not be considered.****

**All applicants are required to submit the following:**

USAJobs Online Resume

College Transcript. (Unofficial transcript may be submitted, **or** a list of courses, grades earned, completion dates and quarter or semester hours earned can be a substitute for a transcript however, if selected an Official Transcript will be required.)

Foreign Education Equivalency (if applicable).

**RECOMMENDED DOCUMENTS:**

Supplementary statement addressing the quality ranking factors which highlights aspects of your background as they relate to the knowledge, skills, and abilities required by the position. Note: Rankings will be based solely on information contained in your application package. **Failure to address the quality ranking factors may result in a lower rating.**

Your complete online application and any required supplemental documentation (e.g., college transcripts, SF-50 or equivalent) must be received by 11:59 p.m. Eastern Time (ET) on the closing date of this announcement. It is also your responsibility to ensure that all documents are received on time and that the materials are readable. Failure to do so will result in your application being removed from consideration for this announcement.

Questions regarding this announcement may be addressed to Recruit_Mgn@netl.doe.gov or call Human Resources at (304) 285-4016.

**WHAT TO EXPECT NEXT:**

You may check your application status any time after the announcement closes. Go to the USAJOBS web site and select **My Account - Main Page** at the top of the page. Enter your Username and Password to sign in and click the **Application Status** link under **My Account**. We will update your status when changes are made. If you have other questions or need other assistance, you may use the Human Resources contact information above.